DOCUMENT RESUME

ED 139 333 HE 008 937

TITLE	Study of Public Health Service (PHS) Scholarship Recipients and National Health Service Corps (NHSC) Participants. Final Report.
INSTITUTION	Association of American Medical Colleges, Washington, D. C.
SPONS AGENCY	Health Resources Administration (DHEW/PHS), Bethesda, Md. Bureau of Health Manpower.
PUB DATE	May 77
CONTRACT	231-76-0011
NOTE	80p.
EDRS PRICE	MF-$0.83 HC-$4.67 Plus Postage.
DESCRIPTORS	Bibliographies; Career Choice; Comparative Analysis; Financial Support; *Geographic Distribution; Higher Education; *Medical Education; Medical Students; National Programs; *Physicians; Policy Formation; Primary Health Care; *Scholarships; *Specialization; Statistical Data; *Student Characteristics; Student Loan Programs
IDENTIFIERS	National Health Service Corps; *Public Health Service

ABSTRACT

In order to aid the Public Health Service in selecting scholarship recipients who will help to correct the current physician speciality and geographic maldistribution problems, this study compares specific characteristics of PHS scholarship recipients to medical students and to physicians participating in the National Health Service Corps (NHSC). Data from the Medical Student Information System (MSIS) were used for information on socioeconomic background (age, race, ethnicity, parent occupation, parent education, and academic background. The findings indicate that students selected for PHS scholarships differ somewhat in their background characteristics from all students enrolled in the 1975-76 academic year, although recipients still represent a diversity of backgrounds. PHS recipients differed little if any from the general medical student population with regard to tentative plans to practice in the primary care specialties. Implications of the findings for determining scholarship award criteria are discussed. (LBH)

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ED139333

68 pp.

STUDY OF PUBLIC HEALTH SERVICE (PHS) SCHOLARSHIP RECIPIENTS AND NATIONAL HEALTH SERVICE CORPS (NHSC) PARTICIPANTS

FINAL REPORT

Association of American Medical Colleges
One Dupont Circle, N.W., Washington, DC 20036

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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Public Health Service
Health Resources Administration
Bureau of Health Manpower
Contract No. 231-76-0011

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STUDY OF PUBLIC HEALTH SERVICE (PHS) SCHOLARSHIP RECIPIENTS AND NATIONAL HEALTH SERVICE CORPS (NHSC) PARTICIPANTS

Division of Student Studies

ASSOCIATION OF AMERICAN MEDICAL COLLEGES

May 1977

The work upon which this publication is based was supported in part by the Bureau of Health Manpower, Department of Health, Education, and Welfare pursuant to contract number 231-76-0011. However, any conclusions and/or recommendations expressed herein do not necessarily represent the views of the supporting agency.

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Executive Summary

Purpose

The general purpose of this report is to aid the Public Health Service in selecting scholarship recipients who will help to correct the current physician specialty and geographic maldistribution problems. The study attempts to do this by comparing specific characteristics of PHS scholarship recipients to medical students enrolled in the 1975-76 academic year and (where data are available) to those physicians participating in the National Health Service Corps (NHSC). In addition, a comparison of PHS scholarship recipients is made by their preference for assignment in the Bureau of Medical Services (BMS), the Indian Health Service (IHS), or the National Health Service Corps (NHSC).

Methodology

Comparison of these groups uses data retrieved from the Medical Student Information System (MSIS), which is maintained by the Association of American Medical Colleges. MSIS contains information on demographic and socioeconomic characteristics, undergraduate academic performance, and career plans (at time of taking the MCAT) for most medical students who have entered medical school during the last decade.

Major Findings

Analysis of this data resulted in the following major findings:

1. Although the median age of PHS scholarship recipients and of the general student population upon application was comparable (21 years), NHSC physicians were generally older when they applied to medical school (24 years).

2. When compared to all medical students enrolled in the 1975-76 academic year, relatively more scholarship recipients were from underrepresented minorities--24.1 percent of PHS recipients versus 10.2 percent of all enrolled students.

3. Fathers of PHS recipients had less education and were more frequently employed as skilled or unskilled workers (20.3 percent) than were fathers of enrolled students (13.6 percent). PHS recipients' fathers were less apt to be physicians than were the fathers of enrolled students generally (9.3 percent and 13.7 percent, respectively).

4. With respect to their career plans prior to entering medical school, 45.1 percent of scholarship recipients but only 37.3 percent of all enrolled medical students stated a preference for "general practice" as their major career activity.

5. No large differences were apparent between proportions of all enrolled students (49.4 percent) and PHS recipients (47.8 percent) regarding interest in primary care specialties (i.e., family practice, internal medicine, and pediatrics). Careers in public health/community medicine were almost twice as popular among PHS recipients (11.2 percent) than among all 1975-76 enrolled students (6.3 percent).

6. NHSC physicians achieved higher mean scores than PHS recipients on all four of the MCAT subtests, and, with the exception of the Science subtest, higher mean scores than all 1975-76 enrolled students.

7. PHS scholarship recipients varied little from medical students generally relative to their undergraduate majors. Approximately 80 percent of each population majored in the physical or biological sciences or in a premedical curriculum. In contrast, only 15 percent of each population majored in the sciences or humanities.

8. Comparative characteristics of scholarship recipients by their service preference--Bureau of Medical Services (BMS), Indian Health Service (IHS), and National Health Service Corps (NHSC)--are as follows:

   a. With respect to differences in demographic and background characteristics among the three groups, students preferring the IHS were most likely to be white, to come from higher income families, and to have fathers with at least

some college education who were employed in the health field or as professionals in other fields.

Students preferring BMS were more likely than other recipients to be black and to have fathers (1) who were employed as unskilled laborers and (2) who failed to complete high school.

Students preferring NHSC had fathers who were least likely to be employed within the health field and--along with students preferring BMS--were more likely to have parents with earnings of less than $5,000 annually.

b. With respect to general career plans, relatively more of those preferring BMS planned to establish a specialty practice as opposed to general practice. Of the specialty options, these scholarship recipients were most likely to plan on careers in surgery or internal medicine. Compared with those preferring IHS or NHSC, those favoring BMS more frequently indicated a preference for "hospital-based group" as a practice environment.

Relatively more students interested in serving in NHSC and IHS planned on general practice. Of the specialties, family practice was the most popular; and of the environments, individual or partnership practice rated highest for these two groups of recipients.

c. Little difference was observed in the MCAT scores and the undergraduate grade point averages of the three groups. Overall, students within each of these groups performed on a par with the typical enrolled student.

9. PHS scholarship recipients were evenly divided among public and private medical schools, whereas NHSC participants and all 1975-76 medical students were more apt to attend public schools (54 percent for NHSC and 57 percent for all students).

10. The frequency of PHS scholarships tended to be high in medical schools with certain special attributes. Medical schools with the largest number of scholarship recipients (relative to the total number of enrolled students) were schools which (1) had special financial situations (Georgetown and George Washington), (2) had a large proportion of underrepresented minority students (Howard and Meharry), (3) were located in states with low population densities or large Indian populations (University of Colorado, University of New Mexico, and University of Nevada), or (4) had religious affliiations (Creighton, Loyola, and Loma Linda). Schools supplying the most NHSC participants were Harvard (12), UCLA (11), Loyola (11), USC (10), Johns Hopkins (10), St. Louis (10), and Pennsylvania State (10).

11. By state of residence, those states providing the largest number of PHS scholarship recipients were New York (203), California (163), Pennsylvania (156), Illinois (109), and Ohio (94). The same five states furnished the most NHSC participants: New York (61), California (38), Illinois (29), Ohio (28), and Pennsylvania (27).

12. By location of medical school, those states or areas with the largest number of PHS scholarship recipients were Pennsylvania (192), the District of Columbia (184), New York (144), California (122), Illinois (109), and Tennessee (100). The largest numbers of NHSC participants had graduated from medical schools located in New York (51), California (39), Pennsylvania (33), Illinois (24), Ohio (23), and Massachusetts (22).

Conclusion

The above findings indicate that PHS scholarship recipients and NHSC participants differed somewhat from all medical students enrolled in the 1975-76 academic year but represented a wide diversity of backgrounds.

Since there is some evidence that students planning primary care and public health specialties prior to entering medical school are more likely to retain such interests at graduation, it might be advantageous to consider pre-

admission career plans, along with other background characteristics, in selecting students for future PHS scholarships. Age at application to medical school might also be worthy of consideration.

I. INTRODUCTION

The primary goal of the Public Health Service (PHS) Scholarship Program is to increase the number of physicians practicing in underserved areas. With respect to this goal, it is important that the Service select scholarship recipients who not only will fulfill their service obligation but will continue to practice medicine in these underserved areas once their commitment has ended.

This report attempts to aid the PHS in evaluating their selection criteria by assessing whether scholarship recipients selected before 1977 are likely to fulfill the above goal. This is accomplished by comparing (where possible) PHS scholarship recipients with physicians who have indicated an interest in physician shortage areas through volunteer service in the National Health Service Corps (NHSC) without the incentive of a scholarship. Scholarship recipients are compared with medical students generally in order to ascertain if students presently being selected for the program differ as a group from the total medical student population. Among recipients, comparisons are also made with regard to the particular service program preferred--i.e., NHSC, Indian Health Service (IHS), or Bureau of Medical Services (BMS).

This report was prepared by the following AAMC Division of Student Studies staff: Richard E. Mantovani, Travis L. Gordon, and Davis G. Johnson, Ph.D. (Division Director).

II. METHODOLOGY

A. Data Sources

Data used in this study were obtained from the Medical Student Information System (MSIS) maintained by the Association of American Medical Colleges (AAMC). This data base contains information on applicants from the following sources:

1. The American Medical College Application Service (AMCAS): In applying to schools participating in AMCAS (83 for 1975), students are requested to provide information on their academic and demographic characteristics.

2. Matriculation Forms of the AAMC-AMA Liaison Committee on Medical Education (LCME): This source updates the matriculation status of students accepted by a school using AMCAS as well as providing matriculation information on those students not applying through AMCAS.

3. Medical College Admission Test (MCAT): In addition to the scores from this test, an accompanying questionnaire solicits demographic, background and career plan data from examinees. This test is usually taken at least a year prior to entering medical school.

Since the above data base is relatively new, information on NHSC participants is less complete than that on PHS scholarship recipients and on enrolled students generally.

B. Method of Analysis

The overall strategy for organizing and analyzing the data first required that PHS scholarship recipients and NHSC participants be identified and matched with their MSIS records. This matching process resulted in a data base containing information collected from PHS Scholarship recipients and NHSC participants when they took the MCAT or when they applied to medical school.

In total, 2,385 PHS scholarship recipients and 523 NHSC physicians were identified by PHS and NHSC respectively.

When the MSIS Student Master File was searched, it was possible to match 2,210 or 92.7 percent of the scholarship recipients and 405 or 77.4 percent of the NHSC physicians. Of the PHS scholarship recipients matched, 1,275 (or 57.7 percent) indicated NHSC as their program preference, 530 (or 24.0 percent) indicated IHS, and 405 (or 18.3 percent) indicated BMS.

Frequency distributions were obtained from these data on demographic characteristics, career plans, and academic performance of PHS scholarship recipients and NHSC physicians. Where possible, these groups were compared to the enrolled students in the 1975-76 academic year. In many cases, however, the number of no responses for NHSC physicians precluded any reasonable comparison with the other groups.

PHS scholarship recipients are also compared by program preference. For all of the above variables, recipients are analyzed by their preference to serve in the National Health Service Corps (NHSC), in the Indian Health Service (IHS), or in the Bureau of Medical Services (BMS). These preferences are solicited at the time of application for the scholarship but in no way dictate the service to which the student is eventually assigned.

In all of the above comparisons, the object is to identify those characteristics associated with individuals willing to serve in physician shortage areas. Since the NHSC physicians volunteered for such service rather than agreeing to serve in exchange for a scholarship, the assumption is that such physicians may be used as a standard for evaluating the suitability of PHS scholarship recipients. For this study, the two groups are mutually exclusive, since no scholarship recipients had yet entered the Corps in 1975.

For the comparisons by program preference, the contrast is between students preferring BMS (which serves the Coast Guard, federal prisons, and Public Health Service Hospitals) and those preferring NHSC and IHS. The latter preferences might be expected to indicate more willingness to serve in physician shortage areas.

C. Statistical Tests

Chi-square tests were computed for each of the tables in the study. As summary measures, these tests tended to obscure some of the important details of the data. For instance, the chi-square statistic indicated that ethnicity was related to the receipt of a scholarship from PHS but gave little evidence as to what groups were less or more represented in the scholarship program when compared to their representation in the total medical student enrollment. On the other hand, if no relationship had been found, some ethnic groups still might have been grossly over or underrepresented among PHS scholarship recipients. In both cases, details on specific groups are lost if summary statistics are used. For these reasons, the statistics are not reported although they were used as guides in writing the analysis.

D. Limitations

The primary limitation of this study relates to the absence of any real indicators of long-range commitment to practicing in underserved areas. In the study, it is assumed that volunteers for NHSC in some ways embody this commitment. This assumption is tenuous, since the only data examined for NHSC physicians were gathered before their admission to medical school. A gap from five to ten years exists between the time the data were collected on these individuals as MCAT examinees and the time they volunteered as physicians for the Corps. Moreover, no data are included in this study relative to the permanence of their stay in the NHSC or in an underserved area.

This study is also limited by the degree of missing data for NHSC physicians. Most of these physicians were admitted to medical school before the AAMC entered into massive data collection efforts on applicants and students and organized this data system into a reliable resource. Therefore, much of the background data on the NHSC physicians is missing. This hindered efforts to compare the NHSC and PHS groups (see Appendix Table A-1 for information on response rates).

III. RESULTS AND DISCUSSION

The following section reports findings on the background characteristics, career preferences, and academic ability of PHS scholarship recipients (by service preference) and how these compare with those of the total 1975-76 medical student population and (where possible) with those of NHSC physicians. The discussion is divided into four major sections:

A. Socioeconomic Background

B. Career Plans Prior to Entering Medical School

C. Academic Background

D. Proximity to Physician Shortage Areas

The generally low response rate for NHSC physicians to the variables under study limits comparisons using this population. In many cases, therefore, information for these physicians was not presented in the analysis. Further details on response rates for all the populations under study appear in the Methodology and are summarized in tabular form in Appendix Table A-1.

The distributions of all populations by medical school, although not appearing in the following discussion, are furnished in Appendix Table A-2. These data, when subdivided by medical school control (i.e., public and private), make possible the following general observations:

a. Although 57.1 percent of the 1975-76 medical students were attending public schools, only 49.7 percent of PHS scholarship students were enrolled in public schools. Among the three service preferences, the majority of those scholarship recipients favoring BMS and NHSC were in private schools--55.6 percent and 51.8 percent, respectively. For those preferring IHS, however, no relationship between school control and the enrollment of scholarship recipients was evident in the data, since their distribution was the same as that for 1975-76 enrolled students generally. This may result in part from the PHS's recruitment for the IHS of American Indians, many of whom are

enrolled in public schools in the west and southwest.

b. While most NHSC physicians (53.8 percent) tended to have attended public medical schools, this proportion was less than those students enrolled in 1975-/6 (57.1 percent).

A. Socioeconomic Background

1. Gender

For the 1975-76 academic year, 55,983 students were enrolled in U.S. medical schools. Of these, 44,435 were men and 11,448 were women--a ratio of 3.88 men to every woman. PHS scholarship recipients were more apt to be male, since for this group there were 4.69 men to every woman. Little relationship was evident between the particular service preferences and gender. (The ratios of men to women were: BMS, 4.96; IHS, 4.82; and NHSC, 4.56.) For NHSC physicians, the ratio of men to women was 27.93 (391 men and 14 women.)

2. Age at Application to Medical School*

Although most students tend to enter medical school directly from their undergraduate studies, some students pursue graduate studies or work before applying for medical school. Such students would inevitably be older and, as a result of their more varied experience, may have different interests than younger, less experienced students. An argument may be made that such interests could lead these older medical students into practicing in physician shortage areas. The data examined in this study somewhat support the above argument.

For medical students enrolled in 1975-76, the median age at the time of application to medical school was 21 years, which indicates that many, if not most, students entered medical school directly upon completion of their undergraduate work. Only 12.9 percent of these students were 25 years or older at time of application.

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* The age figures in this report are not directly comparable to those in most other AAMC reports because they are based on year of application rather than year of matriculation.

This age pattern is also evident for those students receiving PHS scholarships. The median age again was close to 21 years, and 14.8 percent of these recipients were 25 years or more at time of application to medical school. Little if any difference is found among recipients with different service preferences. For instance, the median age for those preferring BMS was 21.3 years; for those preferring IHS, this median was 21.4; and for those preferring NHSC, it was 21.2 years. The proportion of students 25 years or older was 15.5 percent for those preferring BMS, 14.8 percent for those preferring IHS, and 14.5 percent for those preferring NHSC.

When the above groups are compared to NHSC physicians, however, there are notable differences in the age patterns. The median age of NHSC physicians when they applied to medical school was 23.8 years, more than 2 years greater than that observed for the general medical school population. More important was the proportion of these physicians who were 25 years or older at time of application--45 percent. This was approximately three times the proportion of PHS recipients who were 25 years or older.

Given that NHSC physicians have demonstrated interest in serving in shortage areas, it would seem that age and interest in such service are correlated. It is also apparent that PHS scholarship recipients were generally younger than NHSC physicians when each applied to medical school. Age, probably not a criterion in selecting past scholarship recipients, might therefore be another factor worthy of consideration in selecting future candidates most interested in serving in physician shortage areas.

3. Race/Ethnicity

The vast majority (84.6 percent) of medical students enrolled during the 1975-76 academic year were white/Caucasians (Table 1). Underrepresented minorities (black American, American Indian, and Hispanic)* composed 10.2 percent of this student body. The other five percent were Oriental Americans or other minorities.

Although the majority of students receiving PHS scholarships were white (71.8 percent), there were proportionally fewer whites and more underrepresented

* Included as Hispanics are Cubans, Mexican Americans, and both island and mainland Puerto Ricans.

Table 1

Distribution of Enrolled Medical Students (1975-76) and PHS Scholarship Recipients by Race/Ethnicity

Race/Ethnicity	Enrolled Students (1975-76)		PHS Scholarship Recipients 1972-75							
			All Recipients		By Service Preference					
					BMS		IHS		NHSC	
(1)	No. (2)	% (3)	No. (4)	% (5)	No. (6)	% (7)	No. (8)	% (9)	No. (10)	% (11)
Total*	50,382	100.0	1,886	100.0	348	100.0	442	100.0	1,096	100.0
Caucasian	42,627	84.6	1,354	71.8	218	62.6	354	80.1	782	71.4
Black American†	3,456	6.9	357	18.9	102	29.3	21	4.8	234	21.4
American Indian†	172	0.3	43	2.3	2	0.6	35	7.9	6	0.5
Hispanic§	1,491	3.0	54	2.9	10	2.9	10	2.3	34	3.1
American Oriental	1,011	2.0	20	1.1	6	1.7	4	0.9	10	0.9
Other**	1,625	3.2	58	3.1	10	2.9	18	4.1	30	2.7

* These totals exclude individuals not responding to item on race/ethnicity.

† 1975-76 enrollment data for these groups are taken from AAMC Fall Enrollment Questionnaires, and do not include non-U.S. blacks or citizens of India.

§ Includes Mexican-Americans, Puerto Ricans and Cubans.

** Includes citizens of foreign countries.

minorities among recipients than among the 1975-76 student body. Underrepresented minorities accounted for 24.1 percent of PHS scholarship recipients, compared with 10.2 percent of all enrolled students. Most of such minority scholarship recipients were black (78.6 percent of the underrepresented minority recipients and 18.9 percent of all recipients). American Indians and Hispanics accounted for 9.5 percent and 11.9 percent of the students identified as underrepresented minorities (and 2.3 and 2.9 percent, respectively, of all recipients).

When compared with all enrolled medical students, blacks and American Indians were overrepresented among scholarship recipients, while whites and Oriental Americans were underrepresented. Using the number of 1975-76 enrolled medical students as a base, one of four American Indians and one of ten black Americans received PHS scholarships. These compare with approximately one of 28 enrolled Hispanics and one of 31 whites. (This high relative number of American Indians is due in part to the fact that the PHS favors such applicants in making scholarship awards.)

The relationship between service preferences among scholarship recipients and race/ethnicity is somewhat obscured by the large proportion of white scholarship recipients. Whereas almost 72 percent of all recipients were white, 80.1 percent of those preferring to serve in IHS were white. Conversely, only 62.6 percent of those preferring BMS were white.

Students identifying themselves as American Indians also showed a preference for IHS. Whereas less than 1 percent of those preferring either BMS or NHSC were Indians, almost 8 percent of those preferring IHS were of such ethnicity. Of the 43 American Indians with PHS scholarships, 35 preferred IHS over the other two services. Black Americans, composing over one-fifth of those recipients preferring NHSC and almost a third of those preferring BMS, account for only one-twentieth of those preferring IHS. These results suggest that in at least some instances, the relationship between service preference and race/ethnicity is governed by the desire of the recipients of a particular ethnicity to serve those individuals of the same ethnicity.

4. Father's Occupation

Almost one-fifth (18.2 percent) of the students enrolled in 1975-76 had fathers employed in the health field either as a "Physician" or "Other health worker" (Table 2). Approximately one-fourth (25.6 percent) of the fathers were employed as professionals in fields other than those related to health, while 22.4 percent were owners or managers of non-farm businesses. The remaining one-third (33.8 percent) were primarily employed as clerks and unskilled or skilled workers or were in some manner associated with farming.

Of the PHS scholarship recipients, only 13.0 percent of the fathers were employed in the health professions--5.2 percent less than the proportion reported for all enrolled medical students. Fathers of scholarship recipients were also less likely to be owners or managers of non-farm businesses (16.2 percent) than were enrolled students generally (22.4 percent). On the other hand, the fathers of scholarship recipients were more apt to be employed as skilled or unskilled workers. Whereas only 13.6 percent of all enrolled students reported fathers with these occupations, 20.3 percent of scholarship recipients did.

Among scholarship recipients, service preferences did not differ significantly with father's occupation, except for "Physician" and "Unskilled Worker." Children of physicians comprised 11.3 percent of those recipients preferring BMS and 10.4 percent of those preferring IHS, but only 8.2 percent of those indicating an interest in NHSC. Those with fathers who were unskilled workers accounted for 10.2 percent of the recipients preferring BMS, 9.0 percent of those stating a preference for NHSC, but only 4.5 percent of those preferring IHS.

5. Mother's Occupation

Most of the medical students (54 percent) enrolled in 1975-76 had mothers who were homemakers (Table 3). Of the occupations other than homemaker, mothers of these students were most frequently found in the non-health professions (13.1 percent) or in clerical/sales occupations (12.2 percent).

Among PHS scholarship recipients, 49.6 percent had mothers who were homemakers, which differs slightly from the proportion found for all enrolled students. Otherwise, the distribution of students by their mother's occupation was

Table 2

Distribution of Enrolled Medical Students (1975-76) and PHS Scholarship Recipients by Father's Occupation

Father's Occupation	Enrolled Students (1975-76)		PHS Scholarship Recipients 1972-75							
			All Recipients		By Service Preference					
					BMS		IHS		NHSC	
(1)	No. (2)	% (3)	No. (4)	% (5)	No. (6)	% (7)	No. (8)	% (9)	No. (10)	% (11)
Total*	51,209	100.0	1,972	100.0	363	100.0	470	100.0	1,139	100.0
Physician	7,041	13.7	183	9.3	41	11.3	49	10.4	93	8.2
Other Health Worker	2,297	4.5	72	3.7	8	2.2	26	5.5	38	3.3
Other Professional	13,121	25.6	552	28.0	98	27.0	136	28.9	318	27.9
Owner/Manager (Non-Farm)	11,467	22.4	320	16.2	52	14.3	78	16.6	190	16.7
Clerical/Sales	3,352	6.5	151	7.7	31	8.5	37	7.9	83	7.3
Craftsman/ Skilled Worker	4,646	9.1	240	12.2	42	11.6	62	13.2	136	11.9
Unskilled Worker	2,283	4.5	160	8.1	37	10.2	21	4.5	102	9.0
Farmer/Farm Worker	1,416	2.8	46	2.3	9	2.5	8	1.7	29	2.5
Other	5,586	10.9	248	12.6	45	12.4	53	11.3	150	13.2

* These totals exclude individuals not responding to item on father's occupation.

Table 3

Distribution of Enrolled Medical Students (1975-76) and PHS Scholarship Recipients by Mother's Occupation

Mother's Occupation	Enrolled Students (1975-76)		PHS Scholarship Recipients 1972-75							
			All Recipients		By Service Preference BMS		IHS		NHSC	
(1)	No. (2)	% (3)	No. (4)	% (5)	No. (6)	% (7)	No. (8)	% (9)	No. (10)	% (11)
Total*	51,262	100.0	1,982	100.0	362	100.0	473	100.0	1,147	100.0
Physician	447	0.9	12	0.6	3	0.8	2	0.4	7	0.6
Other Health Worker	3,376	6.6	127	6.4	22	6.1	24	5.1	81	7.1
Other Professional	6,700	13.1	282	14.2	56	15.5	76	16.1	150	13.1
Owner/Manager (Non-Farm)	1,522	3.0	51	2.6	7	1.9	12	2.5	32	2.8
Clerical/Sales	6,234	12.2	281	14.2	54	14.9	64	13.5	163	14.2
Craftsman/ Skilled Worker	760	1.5	41	2.1	11	3.0	5	1.1	25	2.2
Unskilled Worker	1,260	2.5	63	3.2	17	4.7	10	2.1	36	3.1
Farmer/Farm Worker	98	0.2	1	0.5	0	0	0	0	1	0.1
Homemaker	27,663	54.0	984	49.6	169	46.7	255	53.9	560	48.8
Other	3,202	6.2	140	7.1	23	6.4	25	5.3	92	8.0

* These totals exclude individuals not responding to item on mother's occupation.

very similar for both scholarship recipients and all enrolled students.

When scholarship recipients are compared by their service preferences, it is found that those students preferring IHS had the highest proportion (53.9 percent) of mothers who were classified as homemakers while BMS had the smallest proportion (46.7 percent). In general, however, it appears that differences among students with varied service preferences relative to their mothers' occupations are small.

6. Father's Education

Fathers of medical students enrolled in 1975-76 tended to be relatively well educated. As Table 4 shows, 55.4 percent of the students had fathers who had completed college, while only 12.0 percent had not completed high school.

Scholarship recipients, although basically reflecting these proportions, were from families in which the father had slightly less education. Thus, 50.0 percent of these recipients had fathers who had completed college, and 15.6 percent had fathers who did not complete high school.

Generally, these differences between the distributions of enrolled students and PHS scholarship recipients were not large. However, there is a constant decline in the proportion of students receiving PHS scholarships as parents' education increases. For example, the proportion for students having fathers with less than an eighth grade education was 5.6 percent (179 of 3,196 students). This proportion steadily declines to 3.3 percent (603 of 18,469 students) for students with fathers having professional or graduate training. This may reflect the fact that fewer applicants with fathers in professions need scholarship aid.

Father's education is also of some importance in describing the service preferences of scholarship recipients. Compared with the average PHS scholarship recipient, those recipients preferring NHSC and BMS had fathers with less education, and those preferring IHS had fathers with more education. Thus, whereas 15.6 percent of all recipients had fathers who had not completed high school, 16.8 percent of those preferring NHSC, 19.4 percent of those preferring BMS, but only 9.8 percent of those preferring IHS had fathers with such education. At the

Table 4

Distribution of Enrolled Medical Students (1975-76) and PHS Scholarship Recipients by Father's Educational Level

Father's Educational Level	Enrolled Students (1975-76)		PHS Scholarship Recipients 1972-75							
			All Recipients		By Service Preference BMS		IHS		NHSC	
(1)	No. (2)	% (3)	No. (4)	% (5)	No. (6)	% (7)	No. (8)	% (9)	No. (10)	% (11)
Total*	50,921	100.0	2,005	100.0	366	100.0	480	100.0	1,159	100.0
Less than 8 years	3,196	6.3	179	8.9	38	10.4	28	5.8	113	9.7
Some high school	2,902	5.7	134	6.7	33	9.0	19	4.0	82	7.1
Completed high school	7,662	15.0	314	15.7	50	13.7	72	15.0	192	16.6
Specialized technical training	1,888	3.7	73	3.6	13	3.6	18	3.8	42	3.6
Some college	6,845	13.4	293	14.6	49	13.4	75	15.6	169	14.6
Completed college	9,710	19.1	399	19.9	65	17.8	113	23.5	221	19.1
Graduate or professional school	18,469	36.3	603	30.1	116	31.7	151	31.5	336	29.0
Other	289	0.6	10	0.5	2	0.5	4	0.8	4	0.3

* These totals exclude individuals not responding to item on father's education.

other extreme, only 48.1 percent of those preferring NHSC, 49.5 percent of those preferring BMS, and 55.0 percent of those preferring IHS had fathers with at least a college education.

7. Mother's Education

The findings on mother's education (Table 5) are generally similar to those observed for fathers of medical students. Among 1975-76 enrolled students, 37.6 percent had mothers who had completed college, compared with 33.2 percent of PHS scholarhips recipients. In addition, 9.5 percent of all enrolled students had mothers with less than a high school education while 12.0 percent of the mothers of scholarship recipients had such education.

The comparison of scholarship recipients by service preference reveals that the mothers of those students preferring BMS and IHS were more apt to have completed college than the mothers of students preferring NHSC. When compared to students preferring other services, those with BMS preferences were also more likely to have mothers without high school diplomas. These results somewhat blur the relationship of mother's education and service preference for those choosing BMS.

8. Parental Income

For parents' combined gross annual income (estimated for the previous year by students when they took the MCAT), the median for 1975-76 enrolled students was $17,260 (Table 6). Just over 19 percent of these students had parents earning less than $10,000 and 41.1 percent had parents earning $20,000 or more.

The parents of PHS scholarship recipients had a median income of $14,120, more than $3,000 lower than that for the parents of all enrolled students. For this group, 28.9 percent had parents earning less than $10,000 and 28.8 percent had parents earning $20,000 or more. From a comparison of scholarship recipients to enrolled students, it appears that the scholarship recipients came from less affluent families. It should be noted, however, that seniors enrolled in 1975-76 reported parental incomes for 1970 or 1971, while most freshmen gave parental earnings for 1973. This qualifies the finding that PHS recipients came

Table 5

Distribution of Enrolled Medical Students (1975-76) and PHS Scholarship Recipients by Mother's Educational Level

Mother's Educational Level	Enrolled Students (1975-76)		PHS Scholarship Recipients 1972-75							
			All Recipients		By Service Preference					
					BMS		IHS		NHSC	
(1)	No. (2)	% (3)	No. (4)	% (5)	No. (6)	% (7)	No. (8)	% (9)	No. (10)	% (11)
Total*	50,938	100.0	2,008	100.0	367	100.0	480	100.0	1,161	100.0
Less than 8 years	2,169	4.3	110	5.5	30	8.2	13	2.7	67	5.8
Some high school	2,666	5.2	131	6.5	25	6.8	22	4.6	84	7.2
Completed high school	13,423	26.4	528	26.3	79	21.5	122	25.4	327	28.2
Specialized technical training	3,570	7.0	142	7.1	20	5.4	40	8.3	82	7.1
Some college	9,716	19.1	420	20.9	72	19.6	111	23.1	237	20.4
Completed college	11,443	22.5	393	19.6	83	22.6	96	20.0	214	18.4
Graduate or professional school	7,669	15.1	273	13.6	55	15.0	70	14.6	148	12.7
Other	282	0.6	11	0.5	3	0.8	6	1.3	2	0.2

* These totals exclude individuals not responding to item on mother's education.

Table 6

Distribution of Enrolled Medical Students (1975-76) and PHS Scholarship Recipients by Parental Income*

Gross Parental Income	Enrolled Students (1975-76)		PHS Scholarship Recipients 1972-75							
			All Recipients		By Service Preference					
					BMS		IHS		NHSC	
(1)	No. (2)	% (3)	No. (4)	% (5)	No. (6)	% (7)	No. (8)	% (9)	No. (10)	% (11)
Total+	48,905	100.0	1,902	100.0	350	100.0	449	100.0	1,103	100.0
Less than $5,000	2,974	6.1	186	9.8	47	13.4	23	5.1	116	10.5
$5,000 - $9,999	6,424	13.1	363	19.1	65	18.6	85	18.9	213	19.3
$10,000 - $14,999	11,458	23.4	488	25.7	88	25.1	122	27.2	278	25.2
$15,000 - $19,999	7,939	16.2	317	16.7	53	15.1	79	17.6	185	16.8
$20,000 or more	20,110	41.1	548	28.8	97	27.7	140	31.2	311	28.2
Median Income	$17,260		$14,120		$13,580		$14,770		$14,000	

* On the MCAT, examinees are asked to estimate their parents' combined gross annual income for the previous year.

+ These totals exclude individuals not responding to item on parental income.

from lower income backgrounds, since these students were overrepresented in junior and senior classes, and income data for this study are not corrected for inflation.

Of the scholarship recipients, those students preferring IHS had parents with the highest median income ($14,770), those preferring BMS had parents with the lowest ($13,580), and those preferring NHSC had parents with median incomes of $14,000.

B. Career Plans Prior to Entering Medical School

When taking the Medical College Admission Test, students are asked to supply information on their tentative career plans. Obviously, these plans may change as medical students approach graduation. However, as shown in Appendix Table A-3, career plans at application do have some relevance in predicting those students who will express interest in primary care at the time of application to the National Intern Resident Matching Program (NIRMP).* In particular, the evidence shows that there is a high likelihood (approximately 7 in 10 chances) that a student having premedical school career plans for primary care or public health will still prefer such specialties at application to NIRMP. Students who were not interested in any specialty upon application to medical school also show a 7 in 10 chance of preferring one of the primary care specialties upon graduation. In comparison, an MCAT examinee favoring other specialties such as surgery, psychiatry, or obstetrics/gynecology is less likely (50-50 chance) to favor primary care upon application to NIRMP.

Tables 7-9 examine these preadmission career plans as a basis for differentiating between PHS scholarship recipients and all students enrolled in 1975-76.

1. Practice Plans

Physicians serve the community in various ways. One of the most important is through general practice, which brings the physician into continuing contact with the patient.

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* The data presented here and in Appendix Table A-3 are extracted from a yet unpublished study of medical student career choices being conducted in the AAMC Division of Student Studies by J. M. Cuca.

Specialty practice, in which the contact with the patient is often through referral, is also a common way that physicians can serve. Finally, a physician may prefer to teach or to do research or to combine these endeavors with a specialty practice. Table 7 presents data on these general types of career activities.

Of 1975-76 enrolled students who had career practice plans before entering medical school, 37.3 percent preferred general practice, and 32.4 percent planned on specialty practice only. Another 28 percent planned to concentrate either solely on research and/or teaching (4.5 percent) or on a combination of research, teaching, and specialty practice (23.8 percent).

In comparison to these enrolled students, a higher proportion (45.1 percent) of the PHS scholarship recipients planned on general practice. Interest in specialty practice, teaching and/or research, or a combination thereof was lower among scholarship recipients than among the general student population, although the proportion having such plans (53 percent) constituted a majority of scholarship recipients.

Among PHS scholarship recipients, the greatest interest in general practice was found among those preferring to serve either in NHSC or IHS, and the least interest was found among those preferring service in BMS. Thus, as is shown in Table 7, 48.3 percent of those preferring NHSC and 46.6 percent of those preferring IHS indicated interest in general practice. The comparable proportion for those preferring BMS was 32.3 percent, which was less than the proportion of all enrolled students with such practice plans (37.3 percent). Compared with the other preferences, a higher proportion of those preferring BMS were interested in specialty practice, research and/or teaching, or a combination of these activities.

Although PHS scholarship recipients, as a whole, showed a greater interest in general practice (45.1 percent) than did all enrolled students, the majority did not prefer such practice at the time of taking the MCAT. While this finding may be explained in part by changes over time in career preferences, it may also reflect the fact that many of the so-called specialty practices involve a patient-physician relationship similar to that for general practice. The following section helps clarify this situation by examining student plans for specific specialties.

Table 7

Distribution of Enrolled Medical Students (1975-76) and PHS Scholarship Recipients by Nature of Medical Practice (planned at time of taking the MCAT)

Nature of Medical Practice	Enrolled Students (1975-76)		PHS Scholarship Recipients 1972-75							
			All Recipients		By Service Preference BMS		IHS		NHSC	
(1)	No. (2)	% (3)	No. (4)	% (5)	No. (6)	% (7)	No. (8)	% (9)	No. (10)	% (11)
Total*	52,464	—	2,059	—	379	—	492	—	1,188	—
Adjusted Total+	45,750	100.0	1,805	100.0	319	100.0	431	100.0	1,055	100.0
General Practice	17,057	37.3	814	45.1	103	32.3	201	46.6	510	48.3
Specialty Practice	14,817	32.4	519	28.8	110	34.5	127	29.5	282	26.7
Research and/or Teaching	2,079	4.5	66	3.7	16	5.0	16	3.7	34	3.2
Combination of Specialty Practice and Research and/or Teaching	10,886	23.8	370	20.5	85	26.6	78	18.1	207	19.6
Other	911	2.0	36	2.0	5	1.6	9	2.1	22	2.1
Undecided	6,714	—	254	—	60	—	61	—	133	—

* These totals exclude individuals not responding to item on practice environment.

+ Adjusted totals exclude "undecided" responses.

2. Specialization Plans

Among medical students in 1975-76 who had indicated specialty plans (Table 8), the most popular fields were family practice (27.1 percent indicating such plans) and surgery (preferred by 17.9 percent). Lowest in popularity were obstetrics/gynecology (3.8 percent) and basic medical science (4.3 percent). The three primary care specialties of family medicine, pediatrics, and internal medicine accounted for 49.4 percent of enrolled students. Non-primary care specialties (such as obstetrics/gynecology, psychiatry and surgery) were preferred by 33.4 percent of enrollees who had specialty plans when they took the MCAT.

Compared to this base of all enrolled students, scholarship recipients were slightly less likely to be planning on primary care specialties--47.8 percent, versus 49.4 percent of all enrolled students.* Of those scholarship recipients preferring primary care specialties, 57 percent chose family medicine, 26 percent chose internal medicine, and 17 percent chose pediatrics. These proportions are similar to the ones reported for all enrolled students.

The proportion of recipients choosing non-primary care specialties (28.3 percent) was less than that for medical students generally. As indicated in Table 8, the proportion of scholarship recipients planning on surgery (12.5 percent) was less than that reported for all enrolled students (17.9 percent).

With respect to specialty interest, the largest difference between medical students generally and PHS scholarship recipients occurred with "Public Health/Community Medicine." Whereas only 6.3 percent of all 1975-76 enrolled medical students had indicated tentative plans for this field, 11.2 percent of PHS scholarship recipients were so inclined when they took the MCAT.

Interest in primary care specialties was found to be most prevalent among those preferring NHSC (49.4 percent) and least prevalent among those preferring BMS (44.1

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* As noted in Table 7, the proportion of PHS recipients who did not plan to specialize (8.0 percent) was 1.3 percentage points higher than that for all enrolled students (6.7 percent). It is likely that when taking the MCAT these students were indicating tentative plans for careers as general practitioners.

Table 8

Distribution of Enrolled Medical Students (1975-76) and PHS Scholarship Recipients by Specialization Plans (at time of taking the MCAT)

Specialization Plans	Enrolled Students (1975-76)		PHS Scholarship Recipients 1972-75							
			All Recipients		By Service Preference					
					BMS		IHS		NHSC	
(1)	No. (2)	% (3)	No. (4)	% (5)	No. (6)	% (7)	No. (8)	% (9)	No. (10)	% (11)
Total*	52,226	—	2,041	—	377	—	486	—	1,178	—
Adjusted Total*	37,723	100.0	1,556	100.0	263	100.0	365	100.0	930	100.0
Primary Care	18,633	49.4	745	47.8	116	44.1	170	46.6	459	49.4
Family Practice	10,239	27.1	428	27.5	53	20.2	109	29.9	266	28.6
Internal Medicine	7,938	10.4	127	8.2	30	11.4	22	6.0	75	8.1
Pediatrics	4,456	11.8	190	12.2	33	12.5	39	10.7	118	12.7
Non-Primary Care Specialties	12,582	33.4	441	28.3	90	34.2	100	27.4	251	27.0
Obstetrics/Gynecology	1,416	3.8	65	4.2	8	3.0	14	3.8	43	4.6
Psychiatry	1,975	5.2	91	5.8	17	6.5	20	5.5	54	5.8
Surgery†	6,734	17.9	195	12.5	45	17.1	51	14.0	99	10.6
Other	2,457	6.5	90	5.8	20	7.6	15	4.1	55	5.9
Basic Medical Science	1,607	4.3	73	4.7	15	5.7	22	6.0	36	3.9
Public Health/Community Medicine	2,375	6.3	175	11.2	32	12.2	39	10.7	104	11.2
Do Not Plan to Specialize	2,526	6.7	124	8.0	10	3.8	34	9.3	80	8.6
Undecided**	14,503	—	483	—	114	—	121	—	248	—

* Totals exclude individuals not responding to item on specialty plans.

* Adjusted total excludes "undecided" responses.

† Includes surgical subspecialties.

** Includes those who eventually plan to specialize but did not know which specialty area.

percent). The difference in interest in these specialties between the two preference groups is explained primarily by the higher proportion of NHSC preferees who planned on family medicine specialties (28.6 percent for NHSC versus 20.2 percent for BMS).

Interest in the non-primary specialties was more evident among those preferring BMS than those preferring NHSC. This difference between the two preference groups was also found among those interested in surgery. For instance, while 17.1 percent of the BMS group were interested in surgery, only 10.6 percent of the NHSC group had such plans prior to entering medical school.

3. Practice Environment

Of the various environments in which physicians practice, the most popular among 1975-76 enrolled students were individual practice and partnership practice (Table 9). Just over two-fifths (41.9 percent) stated a preference for these environments. The other three-fifths were distributed mainly among hospital-based group (27.2 percent) and private group (14.1 percent).

Compared with enrolled students generally, slightly smaller proportions of recipients were interested in individual or partnership practice (37.3 percent) and in hospital-based group (24.5 percent). However, while the third most popular practice environment for all enrolled students was private group, the third most popular for PHS recipients was public health/community medicine. The 15.4 percent of scholarship recipients planning on practicing in public health environments was almost twice the proportion reported for all students (8.2 percent).

Variations in the environment preferences of recipients having different service preferences were found for (1) individual or partnership and (2) hospital-based group environments. Whereas two-fifths (39.2 percent) of those preferring service in NHSC planned on practicing in individual or partnership environments, only 32.5 percent of those preferring service in BMS anticipated practicing in these environments. On the other hand, 31.1 percent of those preferring to serve in BMS planned on practicing in hospital group environments while only 23.0 percent of those preferring NHSC and IHS had such plans. This result somewhat coincides with the differences between the two

Table 9

Distribution of Enrolled Medical Students (1975-76) and PHS Scholarship Recipients by Anticipated Practice Environment (at time of taking the MCAT)

Practice Environment	Enrolled Students (1975-76)		PHS Scholarship Recipients 1972-75							
			All Recipients		By Service Preference					
					BMS		IHS		NHSC	
(1)	No. (2)	% (3)	No. (4)	% (5)	No. (6)	% (7)	No. (8)	% (9)	No. (10)	% (11)
Total*	51,746	—	2,050	—	375	—	489	—	1,186	—
Adjusted Total+	41,655	100.0	1,688	100.0	302	100.0	408	100.0	978	100.0
Individual/ Partnership	17,446	41.9	630	37.3	98	32.5	149	36.5	383	39.2
Private Group	5,868	14.1	239	14.2	42	13.9	55	13.5	142	14.5
Hospital-Based Group	11,346	27.2	413	24.5	94	31.1	94	23.0	225	23.0
Full-Time Teaching/ Research	2,397	5.8	83	4.9	15	5.0	20	4.9	48	4.9
Public Health/Community Medicine	3,405	8.2	260	15.4	41	13.6	70	17.2	149	15.2
Other	1,193	2.9	63	3.7	12	4.0	20	4.9	31	3.2
Undecided	10,091	—	362	—	73	—	81	—	208	—

* These totals exclude individuals not responding to item on practice environment.

+ Adjusted totals exclude "undecided" responses.

services: BMS encompasses PHS hospitals, the Coast Guard, and prisons; NHSC usually involves service in rural areas where individual or partnership practice is more common.

C. Academic Background

1. Mean MCAT Scores

Compared to students enrolled in 1975-76 (see Table 10), PHS scholarship recipients scored consistently lower on each of the four MCAT subtests (Verbal, Quantitative, General Information, and Science), the differences ranging from 1.0 points for General Information to 22.8 points for the Science subtest. When service preference is considered, those with IHS preferences consistently had the highest scores on all subtests; those preferring BMS were consistently the lowest.

NHSC participants, when compared to PHS scholarship recipients and to all enrolled students, scored higher than both groups on all but the Science subtest where they were second to enrolled students generally. The slightly lower Science scores of the NHSC participants might be related to their having entered medical school at a point in time when Science performance of applicants was lower than it is now. For example, the mean Science MCAT of accepted applicants rose from 565 in 1971-72 to 615 in 1975-76.*

2. Undergraduate Grades

Tables 11 and 12 report data on the undergraduate performance of all enrolled students and of PHS scholarship recipients, respectively.

The undergraduate GPAs of medical students enrolled in 1975-76 was 3.41, slightly higher than the 3.27 achieved by PHS scholarship recipients. The difference in the GPA for science courses (physics, chemistry, biology and mathematics) was slightly greater--3.40 for all students and

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* See W. F. Dube and T. L. Gordon, "Applicants for 1975-76 First-Year Medical School Class (Datagram) (Journal of Medical Education, 51:867-869, 1976).

Table 10

Mean Scores on the Medical College Admission Test (MCAT) for Enrolled Students (1975-76), PHS Scholarship Recipients, and NHSC Participants

MCAT Tests	Enrolled Students (1975-76)	PHS Scholarship Recipients 1972-75				NHSC Participants
		All Recipients	By Service Preference BMS	IHS	NHSC	
	Mean Score (2)	Mean Score (3)	Mean Score (4)	Mean Score (5)	Mean Score (6)	Mean Score (7)
(Total N)*	(54,334)	(2,142)	(393)	(515)	(1,234)	(316)
Verbal	567	556	542	597	555	573
Quantitative	614	591	575	602	592	619
General Information	557	556	545	568	555	585
Science	598	575	559	587	575	577

* Total number of individuals for whom scores were reported.

Table 11

Undergraduate Grade Point Average (GPA) of Enrolled Medical Students (1975-76) and PHS Scholarship Recipients by Type of Curriculum

Undergraduate Curriculum	Enrolled Students (1975-76)	PHS Scholarship Recipients 1972-75			
		All Recipients	By Service Preference		
			BMS	IHS	NHSC
(1)	GPA (2)	GPA (3)	GPA (4)	GPA (5)	GPA (6)
(Total N)*	(48,120)	(1,867)	(326)	(452)	(1,089)
All Courses	3.41	3.27	3.19	3.34	3.26
Science+	3.40	3.25	3.16	3.35	3.25
Other	3.42	3.31	3.25	3.38	3.29

* Totals include only those students for whom a mean for "all courses" was calculated.

+ Biology, Chemistry, Physics, and Mathematics.

3.25 for PHS recipients. When scholarship recipients are considered by their service preference, Table 11 shows that the highest GPAs were achieved by recipients choosing IHS and the lowest by those preferring BMS.

When translated into letter grades (Table 12), the data indicate that almost all of the 1975-76 enrolled medical students (95.8 percent) had achieved at least a B average in undergraduate college, and 35.9 percent achieved A averages. Only 4.2 percent had less than a B. Compared with these enrolled students, proportionally fewer PHS scholarship recipients received A's (24.9 percent), while a greater proportion (9.0 percent) achieved less than a B.

Among PHS scholarship recipients, a greater proportion (29.6 percent) of those preferring IHS achieved A's. A's were achieved by only 18.4 percent of those preferring BMS and 24.9 percent of those preferring NHSC. Conversely, a greater proportion (12.6 percent) of those preferring BMS achieved less than a B, whereas only 3.3 percent of those preferring IHS achieved less than a B.

3. Undergraduate Major

It can be expected that most medical students majored in the physical or biological sciences in undergraduate school. Table 13 confirms this expectation. Of the enrolled students in 1975-76, 49.3 percent had a biological science major, 23.2 percent had a physical science major, and 7.0 percent had a premedical major. Together, this constitutes almost four-fifths of these enrolled students. Among the other one-fifth, social science was the most popular major (10.6 percent).

The distribution of scholarship recipients by their undergraduate major is similar to the distribution for medical students generally. For instance, 47.5 percent of the scholarship recipients majored in the biological sciences and 23.7 percent majored in the physical sciences. These proportions differ only slightly from those percentages reported for all enrolled students.

When PHS scholarship recipients are compared by their service preferences, students who majored in the social sciences and humanities tended to favor IHS over the other services. Thus, whereas 18.7 percent of those preferring IHS majored in such areas, only 14.6 percent of those

Table 12

Distribution of Enrolled Medical Students (1975-76) and PHS Scholarship Recipients by Undergraduate Letter Grade

Undergraduate Letter Grade	Enrolled Students (1975-76)		PHS Scholarship Recipients 1972-75							
			All Recipients		By Service Preference					
					BMS		IHS		NHSC	
(1)	No. (2)	% (3)	No. (4)	% (5)	No. (6)	% (7)	No. (8)	% (9)	No. (10)	% (11)
Total*	48,120	100.0	1,867	100.0	326	100.0	452	100.0	1,089	100.0
A (3.6 - 4.0)	17,286	35.9	465	24.9	60	18.4	134	29.6	271	24.9
B (2.6 - 3.6)	28,812	59.9	1,234	66.1	225	69.0	303	67.0	706	64.8
Less than B (Below 2.6)	2,022	4.2	168	9.0	41	12.6	15	3.3	112	10.3

* Totals exclude individuals for whom undergraduate letter grades were not available.

Table 13

Distribution of Enrolled Medical Students (1975-76) and PHS Scholarship Recipients by Undergraduate Major

Undergraduate Major	Enrolled Students (1975-76)		PHS Scholarship Recipients 1972-75							
			All Recipients		By Service Preference BMS		IHS		NHSC	
	No.	%	No.	%	No.	%	No.	%	No.	%
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Total*	52,749	100.0	2,062	100.0	376	100.0	496	100.0	1,190	100.0
Biological Sciences	26,006	49.3	980	47.5	179	47.6	232	46.8	569	47.8
Humanities	2,289	4.3	91	4.4	10	2.7	26	5.2	55	4.6
Physical Sciences	12,264	23.2	489	23.7	91	24.2	117	23.6	281	23.6
Social Sciences	5,576	10.6	227	11.0	41	10.9	67	13.5	119	10.0
Premedical	3,684	7.0	148	7.2	34	9.0	30	6.0	84	7.1
Other	2,930	5.5	127	6.2	21	5.6	24	4.8	82	6.9

* These totals exclude individuals not responding to item on undergraduate major.

preferring NHSC and 13.6 percent of those preferring BMS had such majors. Conversely, there is a slight tendency for BMS individuals to have taken a premedical major. These differences, however, are not dramatic and would indicate that undergraduate major, at most, is a weak predictor of service preference.

D. Proximity to Physician Shortage Areas

It might be expected that interest in underserved areas would be relatively greater among students who were residents of or who had attended medical school in states with a large number of officially designated physician shortage areas (defined by DHEW as areas with a ratio of physicians to population that is usually less than 1 to 4,000).*

The data in Table 13 give little evidence to support this speculation. NHSC physicians--physicians demonstrating interest in shortage areas by volunteering for such service--were no more likely to have resided in states with a large number of shortage areas than were medical students in general. This is also true with regard to the state where they attended medical school. (Data on enrolled students, PHS recipients, and NHSC participants are given in Appendix Table A-4 by state of residence and in Appendix Table A-5 by state of medical school attended.)

It should be noted, however, that most of these NHSC physicians applied to medical school in the late sixties and early seventies. Probable changes in the composition of the medical student population since that time would constitute a major limitation on the use of these physicians as a standard for measuring the suitability of PHS scholarship applicants.

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* For the number of physician shortage areas per state, see "The Physician's Utilization of the NHSC Program: A Summary of NHSC Benefits and the Process of Selecting Practice Locations" (The National Health Service Corps, United States Public Health Service).

Table 14

Distribution of Enrolled Medical Students (1975-76), PHS Scholarship Recipients, and NHSC Participants by Number of Physician Shortage Areas per State of Residence and State of Medical School Attended

Number Of Physician Shortage Areas Per State	Enrolled Students (1975-76)		PHS Scholarship Recipients 1972-75								NHSC Participants	
			All Recipients		By Service Preference BMS		IHS		NHSC			
(1)	No. (2)	% (3)	No. (4)	% (5)	No. (6)	% (7)	No. (8)	% (9)	No. (10)	% (11)	No. (12)	% (13)
BY STATE OF RESIDENCE												
Total	54,587		2,171		401		526		1,244		404	
Less than 5	6,598	12.1	318	14.6	55	13.7	74	14.1	189	15.2	51	12.6
5 to 9	1,777	3.3	89	4.1	16	4.0	29	5.5	44	3.5	17	4.2
10 to 19	21,566	39.5	785	36.2	133	33.2	206	39.2	446	35.9	179	44.3
20 to 29	4,580	8.4	190	8.8	33	8.2	49	9.3	108	8.9	32	7.9
30 to 39	12,117	22.2	497	22.9	92	22.9	107	20.3	298	24.0	91	22.5
40 to 50	7,909	14.5	288	13.3	72	18.0	57	10.8	159	12.8	33	8.2
More than 50*	40	0.1	4	0.2	0	0.0	4	0.7	0	0.0	1	0.2
BY STATE OF MEDICAL SCHOOL ATTENDED												
Total	55,983		2,210		405		530		1,275		405	
Less than 5	7,310	13.1	412	18.6	76	18.8	83	15.7	253	19.8	57	14.1
5 to 9	1,752	3.1	74	3.3	15	3.7	22	4.2	37	2.9	12	3.0
10 to 19	21,315	38.1	727	32.9	120	29.6	199	37.5	408	32.0	165	40.7
20 to 29	4,307	7.8	143	6.5	24	5.9	46	8.7	73	5.7	24	5.9
30 to 39	12,073	21.6	503	22.8	80	19.8	107	20.2	316	24.8	109	26.9
40 to 50	9,063	16.2	351	15.9	90	22.2	73	13.8	188	14.7	38	9.4

* The entire state of Alaska (except for Anchorage and Fairbanks)

IV. SUMMARY AND CONCLUSIONS

In the analysis, comparisons were made between (1) the 1975-76 enrolled student body and PHS scholarship recipients, (2) PHS scholarship recipients and NHSC physicians, and (3) PHS scholarship recipients by service or assignment preference. The major findings from these comparisons are given below.

1. When compared to the total 1975-76 medical school enrollment, PHS recipients were more apt to be from underrepresented minority groups. These minority students accounted for 10.2 percent of all students and 24.1 percent of PHS recipients.

2. Fathers of scholarship recipients had less education than the typical medical student's father and were less likely to be physicians or to be employed in other health occupations and more apt to be skilled or unskilled workers.

3. Upon application to medical school, the median age of PHS scholarship recipients was 21 years, which was also the median age of medical students enrolled in 1975-76. The median age for NHSC physicians, upon application to medical school, was 24 years.

4. When taking the MCAT prior to application for medical school, proportionally more of the PHS recipients than enrolled students indicated an interest in (a) general practice as the major activity of their medical career, (b) public health/community medicine as a specialty, and (c) individual or partnership practice as a career environment.

5. The academic ability of PHS scholarship recipients (as reflected by undergraduate GPAs and MCAT scores) was slightly less than that of the average enrolled student in 1975-76.

6. With respect to the comparison of PHS scholarship recipients, NHSC physicians, and all enrolled students, it was found that NHSC physicians had achieved higher scores on MCAT subtests other than Science.

7. PHS scholarship recipients varied little from medical students generally relative to their undergraduate majors. Approximately 80 percent of each population

majored in the physical or biological sciences or in a premedical curriculum. In contrast, only 15 percent of each population majored in the sciences or humanities.

8. Comparisons of PHS recipients by their service or assignment preference revealed the following:

   a. Students preferring BMS, when compared to those preferring other services, consisted proportionally more of blacks and less of whites. Those recipients preferring IHS tended to be composed of a proportionally greater number of American Indians and white/Caucasians.

   b. PHS recipients with fathers in the health professions were most frequently found among those preferring IHS and least among those preferring NHSC. Scholarship recipients preferring IHS were also more apt to have fathers employed as skilled workers while other recipients more frequently indicated their fathers' occupation as unskilled worker.

   c. The education level of parents was lowest for PHS recipients preferring BMS and NHSC and highest for those preferring IHS.

   d. When compared with scholarship recipients interested in IHS, the group preferring NHSC or BMS had proportionally more students with parental incomes of less than $5,000 and proportionally fewer with parental incomes of more than $15,000.

   e. Career plans involving specialty practice (especially surgery and internal medicine) and hospital group practice environments were more common among scholarship recipients preferring BMS, while students preferring NHSC were more apt to state plans for general practice (especially in family practice and public health/community medicine) and to favor individual or partnership practice environments. As a group, those recipients preferring IHS were most inclined toward general practice as a major career activity and toward primary care specialties (except pediatrics). Compared to those preferring BMS, those recipients with a preference for IHS also

showed more interest in individual or partnership practices and in public health/community medicine.

f. Academic ability (as measured by GPA and MCAT scores) showed only slight variation among the assignment preferences. Those students preferring IHS presented slightly stronger academic records, while those attracted to BMS were slightly below the average for all PHS scholarship recipients.

9. PHS scholarship recipients were evenly divided among public and private medical schools, whereas NHSC participants and all 1975-76 medical students were more apt to attend public schools (54 percent for NHSC and 57 percent for all students).

10. The frequency of PHS scholarships tended to be high in medical schools with certain special attributes. Medical schools with the largest number of scholarship recipients (relative to the total number of enrolled students) were schools which (1) had special financial situations (Georgetown and George Washington), (2) had a large proportion of underrepresented minority students (Howard and Meharry), (3) were located in states with low population densities or large Indian populations (University of Colorado, University of New Mexico, and University of Nevada), or (4) had religious affliiations (Creighton, Loyola, and Loma Linda). Schools supplying the most NHSC participants were Harvard (12), UCLA (11), Loyola (11), USC (10), Johns Hopkins (10), St. Louis (10), and Pennsylvania State (10).

11. By state of residence, those states providing the largest number of PHS scholarship recipients were New York (203), California (163), Pennsylvania (156), Illinois (109) and Ohio (94). The same five states furnished the most NHSC participants: New York (61), California (38), Illinois (29), Ohio (28) and Pennsylvania (27). These states also had some of the highest proportions of all 1975-76 medical students: New York (13.2 percent); California (7.8 percent); Pennsylvania (6.9 percent); Illinois (5.9 percent); and Ohio (4.1 percent).

12. By location of medical school, those states or areas with the largest number of PHS scholarship recipients were Pennsylvania (192), the District of Columbia

(184), New York (144), California (122), Illinois (109) and Tennessee (100). The largest numbers of NHSC participants had graduated from medical schools located in New York (51), California (39), Pennsylvania (33), Illinois (24), Ohio (23) and Massachusetts (22).

13. When NHSC physicians and PHS recipients were distributed by the number of physician shortage areas in their state of residence (and in the state where they attended medical school), no relationship was found between (a) volunteer service in NHSC or receipt of PHS scholarships and (b) the number of shortage areas per state.

14. With respect to gender, the highest ratio of men to women was found among NHSC physicians (27.9 men to every woman). The ratio for PHS scholarship recipients was considerably lower (4.7 men to every woman), but was still higher than the 3.9 ratio of men to women among the 1975-76 student body.

Conclusions

The above findings indicate that students selected for PHS scholarships differed somewhat in their background characteristics from all students enrolled in the 1975-76 academic year. However, scholarship recipients still represented a diversity of backgrounds, a fact which might reflect varying degrees of commitment possessed by these recipients regarding service in shortage areas.

PHS recipients were found to differ little if any from the general medical student population with regard to their tentative plans (expressed when they took the MCAT) to practice in the primary care specialties. The data showed the same diversity in the career plans of scholarship recipients that existed for the entire medical student population. Accordingly, many recipients had expressed no interest in primary care at the time they took the MCAT. Although these premedical school career plans are obviously subject to change during medical school, there is evidence that students planning primary care and public health specialties are more likely to retain interest in such specialties at graduation than are those students planning on other specialties such as surgery.

Given this information and the general purpose of the scholarship program, one could consider age and preadmission career plans, along with other background characteristics, in selecting students for PHS scholarships. Using such criteria could lead to a group of students who might be more prone to remain in shortage areas.

Policy changes utilizing the above conclusions, especially those regarding career plans, may be self-defeating, since students may anticipate which factors are weighed most heavily in awarding scholarships and may alter their answers (on career plans) to increase their chances of obtaining a scholarship. Such behavior would decrease the value of this information (or any other information which cannot be independently verified) as a criterion in the scholarship award process. It is therefore recommended that this potential problem be considered before making any modifications to the present award criteria.

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APPENDIX TABLES

Appendix Table A-1

Response Rates for All Variables

By Population

Table No.	Variable (by Population)	Responses		No Responses		Total	
		No.	%	No.	%	No.	%
	Gender						
	Enrolled Students	55,883	99.8	100	0.2	55,983	100.0
	PHS Scholarship Recipients	2,209	99.9	1	0.1	2,210	100.0
	BMS	405	100.0	0	0.0	405	100.0
	IHS	530	100.0	0	0.0	530	100.0
	NHSC	1,274	99.9	1	0.1	1,275	100.0
	NHSC Physicians	405	100.0	0	0.0	405	100.0
	Age						
	Enrolled Students	51,491	92.0	4,492	8.0	55,983	100.0
	PHS Scholarship Recipients	2,048	92.7	162	7.3	2,210	100.0
	BMS	359	88.6	46	11.4	405	100.0
	IHS	497	93.8	33	6.2	530	100.0
	NHSC	1,192	93.5	83	6.5	1,275	100.0
	NHSC Physicians	403	99.5	2	0.5	405	100.0
	Race/Ethnicity						
	Enrolled Students	50,382	90.0	5,601	10.0	55,983	100.0
	PHS Scholarship Recipients	1,886	85.3	324	14.7	2,210	100.0
	BMS	348	85.9	57	14.1	405	100.0
	IHS	442	83.4	88	16.6	530	100.0
	NHSC	1,096	86.0	179	14.0	1,275	100.0
	NHSC Physicians	90	22.2	315	77.8	405	100.0
	Father's Occupation						
	Enrolled Students	51,209	91.5	4,774	8.5	55,983	100.0
	PHS Scholarship Recipients	1,972	89.2	238	10.8	2,210	100.0
	BMS	363	89.6	42	10.4	405	100.0
	IHS	470	88.7	60	11.3	530	100.0
	NHSC	1,139	89.3	136	10.7	1,275	100.0
	NHSC Physicians	84	20.7	321	79.3	405	100.0
	Mother's Occupation						
	Enrolled Students	51,261	91.6	4,722	8.4	55,983	100.0
	PHS Scholarship Recipients	1,982	89.7	228	10.3	2,210	100.0
	BMS	362	89.4	43	10.6	405	100.0
	IHS	473	89.2	57	10.8	530	100.0
	NHSC	1,147	90.0	128	10.0	1,275	100.0
	NHSC Physicians	86	21.2	319	78.8	405	100.0
	Father's Education						
	Enrolled Students	50,921	91.0	5,062	9.0	55,983	100.0
	PHS Scholarship Recipients	2,005	90.7	205	9.3	2,210	100.0
	BMS	366	90.4	39	9.6	405	100.0
	IHS	480	90.6	50	9.4	530	100.0
	NHSC	1,159	90.9	116	9.1	1,275	100.0
	NHSC Physicians	91	22.5	314	77.5	405	100.0
	Mother's Education						
	Enrolled Students	50,938	91.0	5,045	9.0	55,983	100.0
	PHS Scholarship Recipients	2,008	90.9	202	9.1	2,210	100.0
	BMS	367	90.6	38	9.4	405	100.0
	IHS	480	90.6	50	9.4	530	100.0
	NHSC	1,161	91.1	114	8.9	1,275	100.0
	NHSC Physicians	91	22.5	314	77.5	405	100.0

(Appendix Table A-1 continued)

Table No.	Variable (by Population)	Responses		No Responses		Total	
		No.	%	No.	%	No.	%
6	Parental Income						
	Enrolled Students	48,905	87.4	7,078	12.6	55,983	100.0
	PHS Scholarship Recipients	1,902	86.1	308	13.9	2,210	100.0
	BMS	350	86.4	55	13.6	405	100.0
	IHS	449	84.7	81	15.3	530	100.0
	NHSC	1,103	86.5	172	13.5	1,275	100.0
	NHSC Physicians	89	22.0	316	78.0	405	100.0
7	Nature of Medical Practice						
	Enrolled Students	52,464	93.7	3,519	6.3	55,983	100.0
	PHS Scholarship Recipients	2,059	93.2	151	6.8	2,210	100.0
	BMS	379	93.6	26	6.4	405	100.0
	IHS	492	92.6	38	7.2	530	100.0
	NHSC	1,188	93.2	87	6.8	1,275	100.0
	NHSC Physicians	91	22.5	314	77.5	405	100.0
8	Specialty Choice						
	Enrolled Students	52,226	93.3	3,757	6.7	55,983	100.0
	PHS Scholarship Recipients	2,041	92.4	169	7.6	2,210	100.0
	BMS	377	93.1	28	6.9	405	100.0
	IHS	486	91.7	44	8.3	530	100.0
	NHSC	1,178	92.4	97	7.6	1,275	100.0
	NHSC Physicians	89	22.0	316	78.0	405	100.0
9	Environment						
	Enrolled Students	51,546	92.4	4,437	7.6	55,983	100.0
	PHS Scholarship Recipients	2,050	92.8	160	7.2	2,210	100.0
	BMS	375	92.6	30	7.4	405	100.0
	IHS	489	92.3	41	7.7	530	100.0
	NHSC	1,186	93.0	89	7.0	1,275	100.0
	NHSC Physicians	91	22.5	314	77.5	405	100.0
	Practice Location Plans						
	Enrolled Students	12,126	21.7	43,857	78.3	55,983	100.0
	PHS Scholarship Recipients	56	2.5	2,154	97.5	2,210	100.0
	BMS	4	1.0	401	99.0	405	100.0
	IHS	26	4.9	504	95.1	530	100.0
	NHSC	26	2.0	1,249	98.0	1,275	100.0
	NHSC Physicians	1	0.2	404	99.8	405	100.0
10	MCAT Scores						
	Enrolled Students	54,334	97.1	1,649	2.9	55,983	100.0
	PHS Scholarship Recipients	2,142	96.9	68	3.1	2,210	100.0
	BMS	393	97.0	12	3.0	405	100.0
	IHS	515	97.2	15	2.8	530	100.0
	NHSC	1,234	96.8	41	3.2	1,275	100.0
	NHSC Physicians	316	78.0	89	22.0	405	100.0
11	Undergraduate Grade Point Average						
	Enrolled Students	48,120	86.0	7,863	14.0	55,983	100.0
	PHS Scholarship Recipients	1,867	84.5	343	15.5	2,210	100.0
	BMS	326	80.5	79	19.5	405	100.0
	IHS	452	85.3	78	14.7	530	100.0
	NHSC	1,089	85.4	186	14.6	1,275	100.0
	NHSC Physicians	29	7.2	376	92.8	405	100.0

(Appendix Table A-1 continued)

Table No.	Variable (by Population)	Responses		No Responses		Total	
		No.	%	No.	%	No.	%
12	Undergraduate Letter Grade						
	Enrolled Students	48,120	86.0	7,863	14.0	55,983	100.0
	PHS Scholarship Recipients	1,867	84.5	343	15.5	2,210	100.0
	BMS	326	80.5	79	19.5	405	100.0
	IHS	452	85.3	78	14.7	530	100.0
	NHSC	1,089	85.4	186	14.6	1,275	100.0
	NHSC Physicians	29	7.2	376	92.8	405	100.0
13	Undergraduate Major						
	Enrolled Students	52,748	94.2	3,235	5.8	55,983	100.0
	PHS Scholarship Recipients	2,062	93.3	148	6.7	2,210	100.0
	BMS	376	92.8	29	7.2	405	100.0
	IHS	496	93.6	34	6.4	530	100.0
	NHSC	1,190	93.3	85	6.7	1,275	100.0
	NHSC Physicians	54	13.3	351	86.7	405	100.0

* The data for gender and age were not presented in tabular form.

** Information on this variable was not presented because of the small response rate.

APPENDIX TABLE A-2

Distribution of Enrolled Medical Students (1975-76), PHS Scholarship Recipients, and NHSC Participants By Medical School Attended

Medical School	All Medical Students (1975-76)		PHS Scholarship Recipients 1972-75								NHSC Participants	
			All Recipients		By Assignment Preference DMS		IHS		NHSC			
(1)	No. (2)	% (3)	No. (4)	% (5)	No. (6)	% (7)	No. (8)	% (9)	No. (10)	% (11)	No. (12)	% (13)
Total	55983	100.0	2219	100.0	405	100.0	530	100.0	1275	100.0	405	100.0
By School Control: Public	31960	57.1	1099	49.7	180	44.4	304	57.4	615	48.2	218	53.8
Private	24023	42.9	1111	50.3	225	55.6	226	42.6	660	51.8	187	46.2
Alabama	443	0.8	13	0.6	3	0.8	7	1.3	4	0.3	3	0.7
South Alabama	235	0.4	8	0.4	1	0.2	1	0.2	6	0.5	0	0.0
Arizona	356	0.6	17	0.8	2	0.5	9	1.7	6	0.5	1	0.2
Arkansas	491	0.9	4	0.2	0	0.0	1	0.2	3	0.2	5	1.2
Calif.-Davis	414	0.7	12	0.5	1	0.2	2	0.4	7	0.5	4	1.0
Calif.-Irvine	286	0.5	4	0.1	0	0.0	0	0.0	3	0.2	1	0.2
Calif.-Los Angeles	619	1.1	12	0.5	0	0.0	3	0.6	9	0.7	11	2.7
Calif.-San Diego	321	0.6	11	0.5	2	0.5	1	0.2	8	0.6	0	0.0
Calif.-San Fran.	621	1.1	13	0.6	3	0.7	2	0.4	8	0.6	9	2.2
Loma Linda	563	1.0	61	2.8	5	1.2	7	1.3	39	3.1	3	0.7
Southern Calif.	519	0.9	17	0.8	2	0.5	7	1.3	8	0.6	10	2.5
Stanford	390	0.7	3	0.1	0	0.0	0	0.0	3	0.2	1	0.2
Colorado	511	0.9	40	1.8	3	0.7	19	3.6	18	1.4	6	1.5
Connecticut	273	0.5	9	0.4	2	0.5	2	0.4	4	0.3	1	0.2
Yale	420	0.8	29	1.3	4	1.0	6	1.1	19	1.5	5	1.2
George Washington	560	1.0	56	2.5	9	2.2	11	2.1	36	2.8	2	0.5
Georgetown	793	1.4	71	3.2	13	3.2	12	2.3	46	3.6	4	1.0
Howard	491	0.9	57	2.6	18	4.4	7	1.3	32	2.5	5	1.2
Florida	387	0.7	10	0.5	1	0.2	3	0.6	7	0.5	2	0.5

APPENDIX TABLE A-2
(continued)

Medical School	All Medical Students (1975-76)		PHS Scholarship Recipients 1972-75								NHSC Participants	
			All Recipients		By Assignment Preference BMS		IHS		NHSC			
(1)	No. (2)	% (3)	No. (4)	% (5)	No. (6)	% (7)	No. (8)	% (9)	No. (10)	% (11)	No. (12)	% (13)
Florida State*	60	0.1	1	0.0	0	0.0	1	0.2	0	0.0	0	0.0
Miami	570	1.0	26	1.2	7	1.7	5	0.9	14	1.1	6	1.5
South Florida	174	0.3	12	0.5	2	0.5	5	0.9	5	0.4	0	0.0
Emory	444	0.8	29	1.3	7	1.7	4	0.8	18	1.4	5	1.2
Med. Col. of Georgia	694	1.2	28	1.3	5	1.2	9	1.7	14	1.1	0	0.0
Hawaii	274	0.5	12	0.5	2	0.5	1	0.2	9	0.7	0	0.0
Chicago Med.	398	0.7	9	0.4	0	0.0	0	0.0	9	0.7	3	0.7
Chicago Pritzker	433	0.8	4	0.2	0	0.0	1	0.2	3	0.2	4	1.0
Illinois	1231	2.2	29	1.3	4	1.0	13	2.5	12	0.9	3	0.7
Lovola-(Stritch)	407	0.7	31	1.4	4	1.0	7	1.3	20	1.6	11	2.7
Northwestern	702	1.3	17	0.8	4	1.0	3	0.6	10	0.8	2	0.5
Rush	335	0.6	14	0.6	0	0.0	4	0.8	10	0.8	1	0.2
Southern Ill.	171	0.3	5	0.2	0	0.0	2	0.4	3	0.2	0	0.0
Indiana	1212	2.2	17	0.8	2	0.5	7	1.3	8	0.6	7	1.7
Iowa	687	1.2	32	1.4	5	1.2	6	1.1	21	1.6	8	2.0
Kansas	556	1.0	12	0.5	2	0.5	4	0.8	6	0.5	6	1.5
Kentucky	440	0.8	10	0.5	3	0.7	3	0.6	4	0.3	0	0.0
Louisville	547	1.0	7	0.3	2	0.5	4	0.8	1	0.1	1	0.2
LSU-New Orleans	537	1.1	11	0.5	1	0.2	1	0.2	9	0.7	2	0.5
LSU-Shreveport	230	0.4	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Tulane	595	1.1	36	1.6	14	3.5	4	0.8	18	1.4	3	0.7
Johns Hopkins	489	0.9	4	0.2	0	0.0	1	0.2	3	0.2	10	2.5

APPENDIX TABLE A-2
(continued)

Medical School	All Medical Students (1975-76)		BHS Scholarship Recipients 1972-77								NHSC Participants	
			All Recipients		By Assignment Preference							
					BHS		IHS		NHSC			
(1)	No. (2)	% (3)	No. (4)	% (5)	No. (6)	% (7)	No. (8)	% (9)	No. (10)	% (11)	No. (12)	% (13)
Maryland	679	1.2	26	1.2	1	0.2	8	1.6	16	1.2	8	2.0
Boston	439	1.0	29	1.3	3	0.7	3	0.6	23	1.7	3	0.7
Harvard	658	1.2	14	0.6	1	0.2	2	0.4	11	0.9	12	3.0
Massachusetts	231	0.4	6	0.3	0	0.0	1	0.2	5	0.4	0	0.0
Tufts	419	1.1	21	1.0	7	1.3	5	0.9	9	0.7	7	1.7
Michigan	948	1.7	26	1.2	3	0.7	8	1.5	15	1.2	6	1.5
Michigan State	195	0.7	30	1.3	4	1.0	8	1.5	17	1.0	1	0.2
Wayne State	1027	1.9	33	1.2	5	1.2	11	2.1	11	0.9	3	0.7
Mayo	161	0.3	9	0.4	1	0.2	2	0.4	6	0.5	0	0.0
Minnesota-Duluth	43	0.1	4	0.3	0	0.0	1	0.6	3	0.2	0	0.0
Minnesota-Minneapolis	990	1.8	31	1.4	6	1.5	9	1.7	16	1.3	9	2.2
Mississippi	537	1.0	15	0.7	3	0.7	1	0.2	11	0.9	1	0.2
Missouri-Columbia	449	0.8	19	0.9	4	1.0	6	1.1	9	0.7	3	0.7
Missouri-K.C.	200	0.4	7	0.3	2	0.5	2	0.4	3	0.2	0	0.0
St. Louis	613	1.1	30	1.4	7	1.7	10	1.8	13	1.0	10	2.5
Washington-St. Louis	535	1.0	21	1.0	6	1.5	3	0.6	12	0.9	4	1.0
Creighton	447	0.8	42	1.9	8	2.0	8	1.5	26	2.0	1	0.2
Nebraska	470	0.9	17	0.8	3	0.7	8	1.5	6	0.5	2	0.5
Nevada	70	0.1	16	0.7	1	0.2	6	1.1	7	0.5	0	0.0
Dartmouth	172	0.3	24	1.1	0	0.0	9	1.7	15	1.2	0	0.0

APPENDIX TABLE A-2
(continued)

Medical School	All Medical Students (1975-76)		PHS Scholarship Recipients 1972-75								NHSC Participants	
			All Recipients		By Assignment Preference BMS		IHS		NHSC			
(1)	No. (2)	% (3)	No. (4)	% (5)	No. (6)	% (7)	No. (8)	% (9)	No. (10)	% (11)	No. (12)	% (13)
New Jersey	481	0.9	3	0.1	0	0.0	2	0.4	1	0.1	0	0.0
Rutgers	278	0.5	14	0.6	1	0.2	3	0.6	10	0.8	0	0.0
New Mexico	291	0.5	41	1.9	9	2.2	11	2.1	21	1.6	5	1.2
Albany	454	0.8	18	0.8	1	0.2	7	1.3	10	0.8	3	0.7
Albert Einstein	629	1.1	14	0.6	3	0.7	4	0.8	7	0.5	8	2.0
Columbia	595	1.1	6	0.3	2	0.5	1	0.2	3	0.2	3	0.7
Cornell	419	0.7	7	0.3	1	0.2	3	0.6	3	0.2	4	1.0
Mount Sinai	296	0.5	11	0.5	5	1.2	2	0.4	4	0.3	0	0.0
New York Medical	735	1.3	21	1.0	6	1.5	10	1.8	5	0.4	8	2.0
New York Univ.	699	1.2	7	0.3	2	0.5	1	0.2	4	0.3	3	0.7
Rochester	402	0.7	16	0.7	3	0.7	2	0.4	11	0.9	5	1.2
SUNY-Buffalo	550	1.0	20	0.9	4	1.0	1	0.2	15	1.2	7	1.7
SUNY-Downstate	883	1.6	9	0.4	1	0.2	5	0.9	3	0.2	6	1.5
SUNY-Stony Brook	136	0.2	1	0.0	0	0.0	0	0.0	1	0.1	1	0.2
SUNY-Upstate	479	0.9	14	0.6	0	0.0	4	0.8	10	0.8	3	0.7
Bowman Gray	368	0.7	20	0.9	5	1.2	6	1.1	9	0.7	2	0.5
Duke	486	0.9	15	0.7	3	0.7	4	0.8	8	0.6	2	0.5
North Carolina	505	0.9	27	1.2	7	1.7	5	0.9	15	1.2	6	1.5
North Dakota	206	0.4	4	0.2	0	0.0	2	0.4	2	0.2	0	0.0
Case Western	582	1.0	30	1.4	4	1.0	8	1.5	18	1.4	9	2.2
Cincinnati	632	1.1	12	0.5	1	0.2	2	0.4	9	0.7	7	1.7

APPENDIX TABLE A-2
(continued)

Medical School	All Medical Students (1975-76)		PHS Scholarship Recipients 1972-75								NHSC Participants	
			All Recipients		By Assignment Preference BMS		IHS		NHSC			
(1)	No. (2)	% (3)	No. (4)	% (5)	No. (6)	% (7)	No. (8)	% (9)	No. (10)	% (11)	No. (12)	% (13)
Medical College Ohio-Toledo	244	0.4	14	0.6	3	0.7	4	0.8	7	0.5	1	0.2
Ohio State	718	1.3	30	1.4	3	0.7	6	1.1	21	1.6	6	1.5
Oklahoma	615	1.1	15	0.7	4	1.0	4	0.8	7	0.5	3	0.7
Oregon	466	0.8	30	1.4	5	1.2	4	0.8	21	1.6	6	1.5
Hahnemann	677	1.2	24	1.1	3	0.7	3	0.6	18	1.4	2	0.5
Jefferson	893	1.6	46	2.1	8	2.0	12	2.3	26	2.0	7	1.7
Medical College of Pennsylvania	394	0.7	31	1.4	3	0.7	8	1.5	20	1.6	1	0.2
Pennsylvania State	363	0.6	16	0.7	2	0.5	5	0.9	9	0.7	10	2.5
Pittsburgh	545	1.0	12	0.5	3	0.7	1	0.2	8	0.6	3	0.7
Temple	734	1.3	32	1.4	5	1.2	1	0.2	26	2.0	2	0.5
Pennsylvania	656	1.2	31	1.4	7	1.7	6	1.1	18	1.4	8	2.0
Brown	248	0.4	23	1.0	10	2.5	4	0.8	9	0.7	0	0.0
South Carolina	655	1.2	16	0.7	3	0.7	5	0.9	8	0.6	1	0.2
South Dakota	163	0.3	5	0.2	0	0.0	3	0.6	2	0.2	0	0.0
Meharry	431	0.8	68	3.1	29	7.2	4	0.8	35	2.7	2	0.5
Tennessee	729	1.3	21	1.0	5	1.2	7	1.3	9	0.7	4	1.0
Vanderbilt	342	0.6	11	0.5	1	0.2	2	0.4	8	0.6	3	0.7
Baylor	598	1.1	28	1.3	0	0.0	5	0.9	23	1.8	4	1.0
Texas-Galveston	783	1.4	8	0.4	3	0.7	2	0.4	3	0.2	1	0.2

APPENDIX TABLE A-2
(continued)

Medical School	All Medical Students (1975-76)		PHS Scholarship Recipients 1972-75								NHSC Participants	
			All Recipients		By Assignment Preference BMS		IHS		NHSC			
(1)	No. (2)	% (3)	No. (4)	% (5)	No. (6)	% (7)	No. (8)	% (9)	No. (10)	% (11)	No. (12)	% (13)
Texas-Houston	170	0.3	13	0.6	5	1.2	2	0.4	6	0.5	0	0.0
Texas-San Antonio	503	0.9	8	0.4	2	0.5	2	0.4	4	0.3	3	0.7
Texas-Southwestern	690	1.2	16	0.7	4	1.0	3	0.6	9	0.7	1	0.2
Texas Tech	133	0.2	6	0.3	3	0.7	2	0.4	1	0.1	0	0.0
Utah	399	0.7	26	1.2	2	0.5	7	1.3	17	1.3	0	0.0
Vermont	335	0.6	17	0.8	1	0.2	7	1.3	9	0.7	3	0.7
Eastern Va.	113	0.2	14	0.6	4	1.0	5	0.9	5	0.4	0	0.0
Medical College Of Virginia	610	1.1	28	1.3	8	2.0	4	0.8	16	1.3	9	2.2
Virginia	503	0.9	23	1.0	4	1.0	5	0.9	14	1.1	6	1.5
Washington-Seattle	568	1.0	33	1.5	0	0.0	12	2.3	21	1.6	8	2.0
West Virginia	339	0.6	12	0.5	3	0.7	2	0.4	7	0.5	1	0.2
Medical College of Wisconsin	481	0.9	15	0.7	2	0.5	7	1.3	6	0.5	6	1.5
Wisconsin	624	1.1	29	1.3	2	0.5	13	2.5	21	1.6	7	1.7
Puerto Rico	474	0.8	8	0.4	7	1.7	0	0.0	1	0.1	0	0.0

*Includes Florida A & M.

Appendix Table A-3

Specialty Choice upon Graduation

By Specialty Plans upon Application to Medical School

Specialty Plans upon Application to Medical School *	Specialty Choice upon Graduation*							
	Family Medicine	Internal Medicine	Pediatrics	Total Primary Care	Other	Flexible	Total N	Total %
Primary Care Specialties	15.8	29.1	13.4	70.2	22.5	8.3	2637	100.0
Family Practice	29.7	22.1	8.9	71.0	20.7	8.3	968	100.0
Internal Medicine	3.6	55.0	6.6	70.2	24.5	5.2	815	100.0
Pediatrics	11.0	23.6	59.1	89.1	24.0	6.7	934	100.0
Public Health	20.5	41.3	12.3	73.6	19.1	7.1	424	100.0
Non-Primary Care Specialties	5.6	16.1	4.6	51.6	43.4	4.9	2740	100.0
Surgery	3.1	15.1	4.2	47.4	45.3	7.3	1251	100.0
Psychiatry	7.6	47.6	8.8	54.0	39.4	7.0	467	100.0
Obstetrics/Gynecology	10.3	31.8	11.1	53.3	37.7	9.0	289	100.0
Other	4.9	41.2	4.4	59.3	30.9	9.8	573	100.0
Do Not Plan to Specialize	27.2	43.2	7.9	68.2	23.1	8.7	611	100.0

* As indicated on application to National Intern Residency Matching Program (NIRMP).
+ As recorded on MCAT Questionnaire.

Appendix Table A-4

Distribution of Enrolled Medical Students (1975-76), PHS Scholarship Recipients, and NHSC Participants by State of Residence

State Of Residence	All Medical Students*		PHS Scholarship Recipients 1972-75								NHSC Participants	
			All Recipients		By Assignment Preference BMS		IHS		NHSC			
	No. (2)	% (3)	No. (4)	% (5)	No. (6)	% (7)	No. (8)	% (9)	No. (10)	% (11)	No. (12)	% (13)
Total*	55010		2178	100.0	401	100.0	528	100.0	1249	100.0	405	100.0
Alabama	748	1.4	28	1.3	9	2.2	3	0.6	16	1.3	3	0.7
Alaska	40	0.1	4	0.2	0	0.0	4	0.8	0	0.0	1	0.2
Arizona	356	0.6	23	1.1	3	0.7	14	2.7	6	0.5	5	1.2
Arkansas	529	1.0	7	0.3	1	0.2	2	0.5	4	0.3	5	1.2
California	4309	7.8	163	7.5	30	7.5	39	7.4	94	7.5	38	9.4
Colorado	595	1.1	42	1.9	5	1.2	21	4.0	16	1.3	3	0.7
Connecticut	800	1.5	37	1.7	10	2.5	6	1.1	21	1.7	8	2.0
Delaware	129	0.2	12	0.6	1	0.2	1	0.2	10	0.8	0	0.0
D.C.	229	0.4	19	0.9	5	1.2	3	0.6	11	0.9	2	0.5
Florida	1437	2.6	74	3.4	15	3.7	16	3.0	43	3.4	14	3.5
Georgia	1077	2.0	62	2.8	14	3.5	12	2.3	36	2.9	4	1.0
Hawaii	304	0.6	12	0.6	2	0.5	2	0.5	8	0.6	1	0.2
Idaho	116	0.2	7	0.3	0	0.0	4	0.8	3	0.2	0	0.0
Illinois	3261	5.9	109	5.0	13	3.2	32	6.0	64	5.1	29	7.2
Indiana	1331	2.4	21	1.0	1	0.2	8	1.5	12	1.0	7	1.7
Iowa	742	1.3	40	1.8	6	1.5	7	1.3	27	2.2	10	2.5
Kansas	576	1.0	15	0.7	3	0.7	4	0.8	8	0.6	5	1.2
Kentucky	934	1.7	12	0.6	3	0.7	4	0.8	5	0.4	2	0.5
Louisiana	1178	2.1	40	1.8	12	3.0	3	0.6	25	2.0	5	1.2
Maine	120	0.2	4	0.2	0	0.0	1	0.2	3	0.3	0	0.0
Maryland	1276	2.3	71	3.3	16	4.0	18	3.4	37	3.0	11	2.7

Appendix Table A-4
(continued)

State Of Residence (1)	All Medical Students*		PHS Scholarship Recipients 1972-75								NHSC Participants	
			All Recipients		By Assignment Preference BMS		IHS		NHSC			
	No. (2)	% (3)	No. (4)	% (5)	No. (6)	% (7)	No. (8)	% (9)	No. (10)	% (11)	No. (12)	% (13)
Massachusetts	1271	2.3	59	2.7	7	1.7	15	2.8	37	3.0	18	4.4
Michigan	2329	4.2	91	4.2	14	3.5	25	4.7	52	4.2	11	2.7
Minnesota	1228	2.2	43	2.0	7	1.7	13	2.5	23	1.8	12	3.0
Mississippi	606	1.1	21	1.0	6	1.5	1	0.2	14	1.1	1	0.2
Missouri	1077	2.0	45	2.0	9	2.2	11	2.1	25	2.0	9	2.2
Montana	130	0.2	13	0.6	1	0.2	4	0.8	8	0.6	2	0.5
Nebraska	612	1.1	30	1.4	8	2.0	8	1.5	14	1.1	3	0.7
Nevada	136	0.2	20	0.9	5	1.2	6	1.1	9	0.7	0	0.0
New Hampshire	67	0.1	4	0.2	0	0.0	0	0.0	4	0.3	0	0.0
New Jersey	1892	3.4	63	2.9	5	1.2	16	3.0	42	3.4	10	2.5
New Mexico	320	0.6	38	1.7	7	1.7	10	1.9	21	1.7	5	1.2
New York	7268	13.2	203	9.3	38	9.5	45	8.5	120	9.6	61	15.1
North Carolina	910	1.7	45	2.1	12	3.0	9	1.7	24	1.9	6	1.5
North Dakota	238	0.4	10	0.4	1	0.2	4	0.8	5	0.4	2	0.5
Ohio	2246	4.1	94	4.3	17	4.2	17	3.2	60	4.8	28	6.9
Oklahoma	645	1.2	23	1.1	4	1.0	12	2.3	7	0.6	2	0.5
Oregon	521	0.9	34	1.6	5	1.2	8	1.5	21	1.7	5	1.2
Pennsylvania	3804	6.9	156	7.2	24	6.0	26	4.9	106	8.5	27	6.7
Rhode Island	164	0.3	10	0.4	4	1.0	2	0.5	4	0.3	1	0.2
South Carolina	717	1.3	17	0.8	7	1.7	3	0.6	7	0.6	3	0.7
South Dakota	221	0.4	13	0.6	1	0.2	7	1.3	5	0.4	0	0.0
Tennessee	960	1.7	42	1.9	9	2.2	10	1.9	23	1.8	8	2.0

Appendix Table A-4
(continued)

State Of Residence (1)	All Medical Students*		PHS Scholarship Recipients 1972-75								NHSC Participants	
			All Recipients		By Assignment Preference BMS		IHS		NHSC			
	No. (2)	% (3)	No. (4)	% (5)	No. (6)	% (7)	No. (8)	% (9)	No. (10)	% (11)	No. (12)	% (13)
Texas	2674	4.9	78	3.6	19	4.7	18	3.4	41	3.3	9	2.2
Utah	414	0.8	20	0.9	3	0.7	4	0.8	13	1.0	0	0.0
Vermont	179	0.3	9	0.4	0	0.0	3	0.6	6	0.5	1	0.2
Virginia	1223	2.2	71	3.3	18	4.5	10	1.9	43	3.4	6	1.5
Washington	635	1.2	43	2.0	4	1.0	15	2.8	24	1.9	8	2.0
W Virginia	359	0.7	14	0.6	5	1.2	3	0.6	6	0.5	2	0.5
Wisconsin	1060	1.9	41	2.0	5	1.2	12	2.3	26	2.1	10	2.5
Wyoming	82	0.1	9	0.4	0	0.0	5	0.9	4	0.3	1	0.2
Puerto Rico	590	0.9	8	0.4	7	1.7	0	0.0	1	0.1	0	0.0
US Terr & Poss	12	0.0	1	0.0	0	0.0	0	0.0	1	0.1	0	0.0
Foreign	421	0.8	6	0.3	0	0.0	2	0.5	4	0.3	1	0.2
Unidentified	971	1.7	17	-	4	-	2	-	26	-	0	-

*Excludes Unidentified

Appendix Table A-5

Enrollment of Enrolled Medical Students (1975-76), PHS Scholarship Recipients, and NHSC Participants by State of Medical School

State of Medical School	Enrolled Students (1975-76)		PHS Scholarship Recipients 1972-75								NHSC Participants	
			All Recipients		By Assignment Preference							
					HPS		UHS		NHSC			
(1)	No. (2)	% (3)	No. (4)	% (5)	No. (6)	% (7)	No. (8)	% (9)	No. (10)	% (11)	No. (12)	% (13)
Total	16997		1,233		404		180		1,279		405	100.0
Arizona	483	2.8	31	2.5	4	2.0	6	3.3	10	0.8	1	0.2
Arkansas	358	2.1	23	1.9	2	0.5	7	3.9	6	0.5	1	0.2
California	1697	9.9	74	6.0	31	8.0	4	2.2	3	0.2	5	1.2
Colorado	1772	10.4	67	5.4	13	3.2	22	4.3	85	6.7	39	9.6
Connecticut	1111	6.5	46	3.7	3	0.7	14	3.6	39	3.0	6	1.5
Delaware	240	1.4	31	2.5	8	1.5	6	1.3	23	1.5	6	1.4
District of Columbia	1067	6.3	114	9.2	40	9.8	30	5.3	114	8.6	11	2.7
Florida	1112	6.5	60	4.9	18	4.5	13	7.1	26	2.0	3	0.7
Georgia	1110	6.5	51	4.1	12	3.0	13	4.5	32	2.5	5	1.2
Hawaii	114	0.7	12	1.0	4	0.5	1	0.6	9	0.7	0	0.0
Illinois	1662	9.8	108	8.8	32	8.0	30	6.7	67	5.3	24	5.9
Indiana	1212	7.1	77	6.2	8	0.5	7	3.3	8	0.6	7	1.7
Iowa	827	4.9	50	4.1	5	1.2	6	3.3	21	1.6	8	2.0
Kansas	654	3.8	33	2.5	2	0.5	4	0.3	8	0.6	6	1.5
Kentucky	857	5.0	32	2.6	5	1.2	7	1.3	5	0.4	1	0.2
Louisiana	1440	8.5	82	6.7	15	3.7	6	0.9	22	2.1	5	1.2
Maryland	1388	8.1	91	7.4	3	0.7	9	1.7	18	1.4	18	4.4
Massachusetts	2469	14.5	64	5.2	11	2.7	11	2.1	43	3.7	22	5.4
Michigan	2371	14.0	71	5.8	17	4.0	22	5.3	39	3.1	10	2.5
Minnesota	1194	7.1	36	2.0	1	0.2	14	2.6	25	2.0	9	2.2
Mississippi	637	3.8	11	0.9	1	0.2	1	0.2	11	0.9	1	0.2
Missouri	1790	1.7	72	3.5	19	4.7	21	4.0	37	2.9	17	4.2

(Appendix Table A-5 Continued)

State of Medical School	Enrolled Students (1975-76)		PHS Scholarship Recipients 1972-75								NHSC Participants	
			All Recipients		By Assignment Preference							
					BMS		IHS		NHSC			
(1)	No. (2)	% (3)	No. (4)	% (5)	No. (6)	% (7)	No. (8)	% (9)	No. (10)	% (11)	No. (12)	% (13)
Nebraska	917	1.6	59	2.7	11	2.7	16	3.0	32	2.5	3	0.7
Nevada	70	0.1	16	0.7	3	0.7	6	1.1	7	0.5	0	0.0
New Hampshire	172	0.3	24	1.1	0	0.0	9	1.7	15	1.2	0	0.0
New Jersey	759	1.4	17	0.8	1	0.2	5	0.9	11	0.9	0	0.0
New Mexico	291	0.5	41	1.9	9	2.2	11	2.1	21	1.6	5	1.2
New York	6267	11.3	144	6.5	28	6.9	40	7.5	76	6.0	51	12.6
North Carolina	1359	2.4	62	2.8	15	3.7	15	2.8	32	2.5	10	2.5
North Dakota	206	0.4	4	0.2	0	0.0	2	0.4	2	0.2	0	0.0
Ohio	2176	3.9	86	3.9	11	2.7	20	3.8	55	4.3	23	5.7
Oklahoma	615	1.1	15	0.7	4	1.0	4	0.8	7	0.5	3	0.7
Oregon	466	0.8	30	1.4	5	1.2	4	0.8	21	1.6	6	1.5
Pennsylvania	4262	7.6	150	6.7	31	7.7	36	6.8	125	9.9	33	8.1
Rhode Island	248	0.4	21	1.0	10	2.5	4	0.8	9	0.7	0	0.0
South Carolina	655	1.2	16	0.7	3	0.7	5	0.9	8	0.6	1	0.2
South Dakota	161	0.3	5	0.2	0	0.0	3	0.6	2	0.2	0	0.0
Tennessee	1502	2.7	100	4.5	26	6.4	13	2.5	59	4.7	9	2.2
Texas	2877	5.1	79	3.6	17	4.2	16	3.0	46	3.6	9	2.2
Utah	399	0.7	26	1.2	2	0.5	7	1.3	17	1.3	0	0.0
Vermont	135	0.6	12	0.6	1	0.2	7	1.3	4	0.3	3	0.7
Virginia	1226	2.2	65	2.9	16	4.0	14	2.6	35	2.7	16	3.7
Washington	568	1.0	33	1.5	0	0.0	12	2.3	21	1.6	8	2.0
West Virginia	339	0.6	12	0.5	3	0.7	2	0.4	7	0.5	1	0.2
Wisconsin	1105	2.0	44	2.0	4	1.0	13	2.5	27	2.1	13	3.2
Puerto Rico	474	0.8	8	0.4	7	1.7	0	0.0	1	0.1	0	0.0